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CLAIMS

1. Process for oxidising a substrate which is an acyclic or cyclic terpene, or a cycloalkene; or a substituted derivative thereof, which process comprises oxidising said compound with a mutant haem-containing enzyme, the mutant comprising the substitution of an amino acid in the active site by an amino acid with a less polar side-chain.

2. Process according to claim 1 in which the enzyme is a mutant of P450<sub>cam</sub> or P450<sub>BM-3</sub>, or a mutant of a naturally occurring homologue of either of these enzymes.

3. Process according to claim 2 in which the enzyme is one in which amino acid 47 and/or 51 of P450<sub>BM-3</sub>, or amino acid 96 of P450<sub>cam</sub>, or the equivalent amino acid(s) in a said homologue, have been changed to an amino acid with a less polar side-chain.

4. Process according to any one of claims 1, 2 or 3 in which there are one or more other amino acid substitutions in the active site.

5. Process according to any one of the preceding claims in which the enzyme is (i) P450<sub>cam</sub> and comprises one or more of the following mutations: F87W, F87I, F87L, T185L, T185F, V247A, V247L or F87A-I395F; or (ii) P450<sub>BM-3</sub> and comprises the mutation R47L-Y51F.

6. An enzyme as defined in claim 4 or 5 excluding mutants of P450<sub>cam</sub> which only have the mutations F87A-Y96G-F193A, F87A-Y96G-F193A-C334A, or T101M-T185F-V247M.

7. A polynucleotide which comprises a sequence which encodes an enzyme as defined in claim 6.

8. A cell which expresses:

(i) an enzyme as defined in any one of claims 2 to 6 which in its naturally occurring form has an electron transfer reductase domain, or

(ii) (a) an enzyme as defined in any one of claims 1 to

5;

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- (b) an electron transfer reductase; and  
 (c) an electron transfer redoxin.

9. A cell which expresses:

- (a) (i) P450<sub>cam</sub>, or a fragment thereof; or  
 (ii) a naturally occurring homologue of P450<sub>cam</sub>  
 or a fragment thereof; or  
 (iii) a mutant P450<sub>cam</sub>, or a mutant  
 homologue of thereof  
 as defined in any one of claims 2 to 5; or  
 (iv) a P450<sub>cam</sub> which has at least 70% amino acid  
 homology with (i), (ii) or (iii) and  
 optionally has the mutations defined in  
 any one of claims 3 to 5; and

- (b) an electron transfer reductase; and  
 (c) an electron transfer redoxin:

excluding an *E. Coli* DH5 $\alpha$  cell in which the only  
 mutants of P450<sub>cam</sub> which are expressed are amongst the  
 following:

H<sub>2</sub>N-P450<sub>cam</sub>-TDGTSST-putidaredoxin reductase-TDGASSS-  
 putidaredoxin-COOH,

H<sub>2</sub>N-P450<sub>cam</sub>-TDGTRPGPGPGPGPSST-putidaredoxin  
 reductase-TDGASSS-putidaredoxin-COOH,

H<sub>2</sub>N-P450<sub>cam</sub>-TDGTRPGPGPGPGPGPSST-putidaredoxin  
 reductase-TDGASSS-putidaredoxin-COOH,

H<sub>2</sub>N-putidaredoxin reductase-TDGASSS-putidaredoxin-  
 PLEL-P450<sub>cam</sub>-COOH.

10. A cell according to claim 8 or 9 in which (a),  
 (b) and (c) or (b) and (c) are expressed together in the  
 same fusion protein.

11. A cell according to any one of claims 8 to 10  
 in which:

- (b) is putidaredoxin reductase or a fragment  
 thereof; and/or  
 (c) is putidaredoxin or a fragment thereof.

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12. A cell which expresses:

- (a) (i) P450<sub>BM-3</sub>, or a fragment thereof; or  
(ii) a naturally occurring homologue of P450<sub>BM-3</sub>  
or a fragment thereof; or  
(iii) a mutant P450<sub>BM-3</sub>, or a mutant  
homologue of thereof  
as defined in any one of claims 2 to 5.

13. A process according to any one of claims 1 to 5  
in which the compound is oxidised in a cell according to  
any one of claims 8 to 12

14. A process for making a library of mutants of  
P450<sub>cam</sub> or P450<sub>BM-3</sub>, or mutants of a homologue of either of  
these enzymes comprising contacting a cell according to  
any one of claims 9, and 10 and 11 when dependent on  
claim 9, or according to claim 12 or an *E.Coli* DH5α cell  
as defined in claim 9;

with a mutagen and/or when then the cell is a  
mutator cell culturing the cell in conditions in which  
mutants are produced.

15. Process for selecting a mutant of P450<sub>cam</sub> or  
P450<sub>BM-3</sub>, or a homologue thereof, for its ability to  
oxidise a particular substrate, which process comprises  
screening a group of said mutants for their oxidation  
effect on the particular substrate.

16. Process according to claim 15 in which the  
mutant is additionally selected for its ability to  
oxidise the particular compound to a particular oxidation  
product.

17. A process according to claim 15 or 16 in which  
the screening is carried out on the library made in a  
process according to claim 14.

18. A process for producing a library of oxidation  
products comprising providing a substrate as defined in  
claim 1 to a library made in a process according to claim  
14 and allowing oxidation of the substrate.

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19. An oxidation product obtained by a process according to any one of claims 1 to 5 and 13 wherein optionally the enzyme is one which has been selected in a process according to claim 15, 16 or 17 for use in a method of treatment of the human or animal body by therapy.

20. A pharmaceutical composition comprising an oxidation product obtained by a process according to any one of claims 1 to 5 and 13 wherein optionally the enzyme is one which has been selected in a process according to claim 15, 16 or 17 and a pharmaceutically acceptable carrier or diluent.

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